Commonwealth of Kentucky
Division of Air Quality

PERMIT STATEMENT OF BASIS

TITLE V GENERAL DRAFT PERMIT NO: G-07-001
GENERAL PERMIT FOR MUNICIPAL SOLID WASTE LANDFILLS
MARCH 20, 2007
MASSOUD KAYVANJAH, REVIEWER

SOURCE DESCRIPTION:

This draft permit is being proposed for Municipal Solid Waste landfills that commenced construction, reconstruction or modification on or after May 30, 1991. These landfills usually will have one or more leachate storage tanks. Many also accept asbestos containing waste which is placed in a separate section. Some of the MSW landfills do have bioreactors or portion of a MSW landfill where any liquid other than leachate (leachate includes landfill gas condensate) is added in a controlled fashion into the waste mass (often in combination with re-circulating leachate) to reach a minimum average moisture content of at least 40 percent by weight to accelerate or enhance the anaerobic (without oxygen) biodegradation of the waste.

Leachate is the liquid that is collected under the waste cells that forms from decomposition of the waste or infiltration of water from rain. Leachate is collected to prevent groundwater contamination and is then treated onsite or shipped offsite for treatment. The leachate may be stored in one or more storage tanks while awaiting further treatment. Landfills which emit 50 megagrams or more of non-methane organic compounds (NMOC) are required to install a collection and control system which will control 98% of the collected NMOC.

Landfills also generate fugitive emissions from haul roads, stockpiles and yards as well as various other activities.

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LANDFILLS ARE CURRENTLY OPERATING UNDER PERMIT G-02-001 ISSUED JULY 11, 2002.

APPLICABLE REGULATIONS:

40 CFR 60, Subpart WWW, Standard of Performance for Municipal Solid Waste Landfills that commenced construction, reconstruction, or modification on or after May 30, 1991 and have a design capacity equal to or greater than 2.5 million cubic meters by volume and 2.5 million megagrams by mass [one megagram (Mg) = one metric tonne = 1.10 short ton]

40 CFR 63, Subpart AAAA, National Emission Standard for Hazardous Air Pollutants: Municipal Solid Waste Landfills, applicable to new and existing MSW Landfills

for which requirements of 40 CFR part 60, subpart WWW applies, and are located in a contiguous geographic space where household waste is placed in or on land, including any portion operated as a bioreactor, that have accepted waste since November 8, 1987 as a major source, or is collocated with a major source, or is an area source with design capacity equal to or greater than 2.5 million megagrams by mass and 2.5 million cubic meters by volume was not closed as of January 16, 2003.

40 CFR 61, Subpart M, National Emission Standard for Asbestos, applies to waste containing asbestos.

401 KAR 63:015, Flares, applicable to landfills using flares to control NMOC.

401 KAR 63:010, Fugitive emissions is applicable to each affected facility which emits or may emit fugitive emissions and is not elsewhere subject to an opacity standard within the administrative regulations of the Division of Air Quality, applies to fugitive dust from haul roads, etc

EMISSION AND OPERATING CAPS DESCRIPTION:

Pursuant to 40 CFR 63, Subpart AAAA requires that all landfills described in 40 CFR 63.1935 must meet the requirements of 40 CFR part 60, subpart CC or WWW and requires timely control of bioreactors (if any exist). This subpart also requires such landfills to meet the startup, shutdown, and malfunction (SSM) requirements of the general provisions of this part and provides that compliance with the operating conditions shall be demonstrated by parameter monitoring results that are within the specified ranges and report in accordance with the regulation.

Gaseous emissions generated by decomposition of the waste material contained in the landfill is about 55% methane, 45% carbon dioxide and 1% or less being non-methane organic compounds (NMOC). NMOC contains many hazardous air pollutants (HAPS), volatile organic compounds (VOC) and some greenhouse gases. Landfills which emit 50 megagrams or more of NMOC per year are required under 40 CFR Part 60, Subpart WWW to install an emission collection and control system which will control 98% of the collected NMOC.

COMPLIANCE DEMONSTRATION:

Pursuant to 40 CFR 63.1947, landfills which own or operate a bioreactor that is not permanently closed as of January 16, 2003 and has a design capacity equal to or greater than 2.5 million Megagrams and 2.5 million cubic meters, must install and operate a collection and control system that meets the criteria in 40 CFR 60.752(b)(2)(v) according to the schedule specified in paragraphs (a), (b), or (c) below:

(a) If bioreactor is at a new affected source, then the permittee must meet the requirements in paragraphs (a)(1) and (2) below:

(1) Install the gas collection and control system for the bioreactor before initiating liquids addition.

(2) Begin operating the gas collection and control system within 180 days after initiating liquids addition or within 180 days after achieving a moisture content of 40 percent by weight, whichever is later. If the permittee chooses to begin gas collection and control system operation 180 days after achieving a 40 percent moisture content instead of 180 days after liquids addition, the procedures in 40 CFR 63.1980(g) and (h) should be used to determine when the bioreactor moisture content reaches 40 percent.

(b) If the bioreactor is at an existing affected source, then the permittee must install and begin operating the gas collection and control system for the bioreactor by January 17, 2006 or by the date a bioreactor is required to install a gas collection and control system under 40 CFR part 60, subpart WWW, the Federal plan, or EPA approved and effective State plan or tribal plan that applies to the landfill, whichever is earlier.

(c) If the bioreactor is at an existing affected source and liquids addition is not initiated to the bioreactor until later than January 17, 2006, then the permittee must meet the requirements in paragraphs (c)(1) and (2) of this section:

(1) Install the gas collection and control system for the bioreactor before initiating liquids addition.

(2) Begin operating the gas collection and control system within 180 days after initiating liquids addition or within 180 days after achieving a moisture content of 40 percent by weight, whichever is later. If the permittee chooses to begin gas collection and control system operation 180 days after achieving a 40 percent moisture content instead of 180 days after liquids addition, the procedures in 40 CFR 63.1980(g) and (h) should be used to determine when the bioreactor moisture content reaches 40 percent.

Pursuant to 40 CFR 63.1945, compliance is determined in the in accordance with the standards of 40 CFR part 60, subpart WWW, including performance testing, monitoring of the collection system, continuous parameter monitoring. In addition, continuous parameter monitoring data, collected under 40 CFR 60.756(b)(1), (c)(1), and (d) of subpart WWW, are used to demonstrate compliance with the operating conditions for control systems.

General continued compliance shall be demonstrated in accordance with the requirements of 40 CFR 63.1960, 40 CFR 63.1965 and 40 CFR 63.1975.

A Title V permit is required for the landfills because of the potential emissions of NMOC

exceed major source thresholds for HAP. Fugitive emissions of dust from landfill activities must be suppressed and are not allowed beyond the property line.

PERIODIC MONITORING:

- No variations from Subpart WWW were made with regard to monitoring and operational restrictions at the landfills with the exception of monitoring of flares, used to control NMOC, which requires daily visual observation to ensure the opacity standard in 401 KAR 63:015 is being met.
- The only form of monitoring associated with asbestos is to ascertain that the quantity of asbestos received matches the quantity of asbestos shipped, with a provision for reporting discrepancies [40 CFR 61, Subpart M].
- The leachate storage tanks do not require any monitoring due to the low vapor pressure of leachate.

- **Fugitive Emission Sources:** Stockpiles, Haul Roads and Yard Areas whether paved or unpaved**.**

- Pursuant to 401 KAR 63:010, Section 3(1), no person shall cause, suffer or allow any material to be handled, processed, transported, or stored; a building or its appurtenances to be constructed, altered, repaired or demolished, or a road to be used without taking reasonable precaution to prevent particulate matter from becoming airborne.

- Pursuant to 401 KAR 63:010, Section 3(2), no person shall cause or permit the discharge of visible fugitive dust emissions beyond the lot line of the property on which the emissions originate.

- Pursuant to 401 KAR 63:010, Section 3(3), when dust, fumes gases, mist, odorous matter, vapors or any combination thereof escape from a building or equipment in such a manner and amount as to cause a nuisance or to violate any administrative regulation, the secretary may order that the building odor equipment in which processing, handling and storage are done be tightly closed and ventilated in such a way that all air and gases and air or gas-borne material leaving the building or equipment are treated by removal or destruction of air contaminants before discharge to the open air.

- Pursuant to 401 KAR 63:010, Section 4(4), no one shall allow earth or other material being transported by truck or earth moving equipment to be deposited ontoa paved street or roadway.

Applicable Requirements for Emission Unit 01

CATEGORY	MONITORING ACTION	SCHEDULE	REFERENCE
Gas Collection System	Monitor gauge pressure within each gas extraction well. A negative value indicates a well is operating with a sufficient gas extraction rate.	Monthly	40 CFR 60.756(a)(1)
	Monitor nitrogen concentration using Method 3C or oxygen concentration using Method 3A or 3C in Appendix A to Part 60. Nitrogen concentration values <20% or oxygen concentration values <5% indicate well extraction rates are not causing excessive air infiltration into the landfill.	Monthly	40 CFR 60.756(a)(2)
	Monitor Landfill extraction well. The gas temperature in interior wellhead should be <55°C(131°F) with either nitrogen level less than %20 or an oxygen level less than %5, unless other operating temperature or gas level is demonstrated to be appropriate.	Monthly	40 CFR 60.753 (c) 40 CFR 60.756(a)(3)
	Monitor methane concentration at the landfill surface. Values <500 ppm above background indicate well extraction rates are sufficient to minimize the amount of LFG (landfill gas) seeping out of the landfill.	Quarterly while landfill is active. Annual if no exceedances for 3 consecutive quarters in closed areas.	40 CFR 60.755(c) 40 CFR 60.756(f)
	Monitor cover integrity. Cover repairs must be implemented as necessary.	Monthly	40 CFR 60.755(c)(5)
Gas Control System	Monitor the continuous presence of a pilot flame or the flare flame for an open flare. This requirement confirms operation status of control device.	Continuous (If flare is used other than backup)	40 CFR 60.756(c)(1)
	Monitor gas flow from collection system to open flare. This requirement identifies periods when gas flow has been diverted form the control device	At least once every 15 minutes. (If flare is used other than backup)	40 CFR 60.756(c)(2)
	Monitor the gas flow rate to or bypass of the control device.	Monthly	40 CFR 60.756(b)(2)(i)
	Secure the bypass line valve in the closed position with a car-seal or a lock-and-key configuration and perform a visual inspection of the seal or closure mechanism to ensure that the valve is closed and gas is not being bypassed.	Monthly	40 CFR 60.756(b)(2)(ii)

AREA	RECORD KEEPING ITEM	REFERENCE
Landfill Information	Current maximum design capacity, current amount of refuse in place and year-by year refuse acceptance rates.	40 CFR 60.758(a)
Collection System Design	Plot map showing each existing and planned well in the gas collection system. Provide unique identifying labels for each well. Installation date and location of all newly installed wells per 40 CFR 60.755(b). Description, location, amount, and placement date of all non-degradable refuse including asbestos and demolition refuse placed in landfill areas which are excluded from LFG collection and control. Demonstration of "sufficient" density of wells, horizontal collectors or other gas extraction devices. Maximum expected gas generation flow rate from the landfill as calculated in 40 CFR 60.755(a)(1).	40 CFR 60.758(d) 40 CFR 60.758(d)(1) 40 CFR 60.758(d)(2) 40 CFR 60.758(b)(1)(I) 40 CFR 60.758(b)(1)(I)
Control System Design	Maintain records of control device vendor specifications until the control equipment is removed.	40 CFR 60.758(b)
Records of Initial Performance Test Measurements, for Compliance Demonstration	For open flares not used as backup control record: 1.Type of flare (steam-, air-, or non-assisted) 2. All visible emission readings made during performance test 3. Heat content determination made during performance test 4. Gas flow rate or bypass measurements 5. Exit velocity determinations made during performance test 6. Continuous pilot flame or flare flame monitoring 7. All periods when pilot flames or flare flame is absent	40 CFR 60.758(b)(4)
Routine System Monitoring Parameters	Keep for 5 years Record of the following: 1. Gauge pressure in each extraction well (monthly) 2. Nitrogen or oxygen concentration in extracted LFG (monthly) 3. Temperature of extracted LFG (monthly) 4. Methane concentrations along landfill surface (quarterly) 5. Collection system gas flow to the control device every 15 minutes 6. Continuous presence of a flame	40 CFR 60.758(c) 40 CFR 60.758(c)(4)
Gas Collection System Exceedances	Record all values which exceed the operation standards specified in 40 CFR 60.753. For the quarterly surface scan, include the reading from the subsequent month, whether or not the second reading is exceedance, and the location of each exceedance.	40 CFR 60.758(c) 40 CFR 60.758(c)(4)

AREA	RECORD KEEPING ITEM	REFERENCE
	Record all periods of operation in which the flare flame is out	

REPORT/ACTION	SCHEDULE	REFERENCE
Initial Design Capacity Report	(a) Each owner or operator subject to the requirements of this subpart shall submit an initial design capacity report to the Administrator. (1) The initial design capacity report shall fulfill the requirements of the notification of the date construction is commenced as required by 40 CFR 60.7(a)(1) and shall be submitted no later than: (i) June 10, 1996, for landfills that commenced construction, modification, or reconstruction on or after May 30, 1991 but before March 12, 1996 or (ii) Ninety days after the date of commenced construction, modification, or reconstruction for landfills that commence construction, modification, or reconstruction on or after March 12, 1996. (2) The initial design capacity report shall contain the following information: (i) A map or plot of the landfill, providing the size and location of the landfill, and identifying all areas where solid waste may be landfilled according to the permit issued by the State, local, or tribal agency responsible for regulating the landfill. (ii) The maximum design capacity of the landfill. Where the maximum design capacity is specified in the permit issued by the State, local, or tribal agency responsible for regulating the landfill, a copy of the permit specifying the maximum design capacity may be submitted as part of the report. If the maximum design capacity of the landfill is not specified in the permit, the maximum design capacity shall be calculated using good engineering practices. The calculations shall be provided, along with the relevant parameters as part of the report. The State, Tribal, local agency or Administrator may request other reasonable information as may be necessary to verify the maximum design capacity of the landfill. (3) An amended design capacity report shall be submitted to the Administrator providing notification of an increase in the design capacity of the landfill, within 90 days of an increase in the maximum design capacity of the landfill to or above 2.5 million megagrams and 2.5 million cubic meters. This increase in design capacity may result from	40 CFR 60.757(a)

REPORT/ACTION	SCHEDULE	REFERENCE
	an increase in the permitted volume of the landfill or an increase in the density as documented in the annual recalculation required in 40 CFR 60.758(f).	
Annual NMOC Emission Rate Report (Tier 1)	Report once a year until a gas collection/control system has been installed. Owner is exempted from submitting reports while system is operational.	40 CFR 60.757(b)
Collection and Control System Design Plan	Submit within 1 year after NMOC Emission Rate has a value > 50 Mg/yr.	40 CFR 60.752(b)(2)(I)
Initial Control System Performance Test Report	Submit initial annual report of following information per 40 CFR 60.8 within 60 days after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial startups Report can be included in the initial performance test report. Report shall include: 1. Diagram of collection system showing location of all wells, horizontal collectors, etc. and any areas excluded from control, and proposed sites for future collection system expansion. 2. Data upon which sufficient density of wells, horizontal collectors, surface collectors or other gas extraction devices and the gas mover equipment sizing are based. 3. The documentation of the presence of asbestos or nondegradable material for each area from which collection wells have been excluded based on the presence of asbestos or nondegradable material 4. The sum of the gas generation flow rates for all areas from which collection wells have been excluded based on nonproductivity and the calculations of gas generation flow rate fro each excluded area; 5. The provisions for increasing gas mover equipment capacity with increased gas generation, flow rate, of the present gas mover equipment is in adequate to move the maximum flow rate expected over the life of the landfill; and 6. Provisions for the control of off-site migration. 7. Information on the open flare, including: a) Flare type b) Visible emission readings c) Heat content determination d) Flow rate measurements e) Exit velocity determination	40 CFR 60.757(g)
Annual Compliance Report	Submit initial report within 180 days of emission collection and control system start up. Report is due annually thereafter. Report shall include: 1. Valve and length of time for exceedance of applicable parameters monitored under 40 CFR 60.756(a), (b), (c), and (d), (i.e., temperature, O_2 or N_2 concentrations in each well, instances when positive pressure occurs at a well head in efforts to avoid a fire). 2. Description and duration of all periods when the gas stream is diverted from the control device	40 CFR 60.757(f)/ 40 CFR 63.1980

REPORT/ACTION	SCHEDULE	REFERENCE
	through a bypass line or the indication of the bypass flow as specified under 40 CFR 60.756. 3. Description and duration of all periods when the control device was not operating for a period exceeding one hour, and length of time the control device was not operating (see attached proposal for alternative reporting). 4. All periods when the collection system was not operating in excess of five days. 5. Location of each exceedance of the 500 ppm methane concentration during the surface scan, 40 CFR 60.753(d), and the concentration recorded at each location for which an exceedance was recorded the previous month. 6. Date of installation and the location of each well or collection system expansion added pursuant to paragraphs (a)(3), (b) and (c)(4) of 40 CFR 60.755.	
Control Equipment Removal Report	Submit report within 30 days prior to removal or cessation of control system operations. Controls can be removed after meeting all of these criteria: 1. Landfill Closure Report has been submitted 2. Control systems were operated for at least 15 years 3 Three consecutive NMOC Emission Rate Reports with values ≤ less than 50 Mg/yr being achieved	40 CFR 60.757(e)
Closure Report	Submit a closure report to the administrator within 30 days of waste acceptance cessation.	40 CFR 60.757(d)
Visual Monitoring of Control Device for Opacity Record Result of Visual Monitoring	Daily During Operation	401 KAR 52:020, Section 26
Report Exceedances of Opacity for Passive Gas Control Systems	Promptly as possible upon discovery of exceedance	401 KAR 52:020, Section 26

Applicable Requirements for Emission Unit 02

Visual Monitoring of Fugitive Emission Sources	Daily During Operation	401 KAR 52:020, Section 26
Record Date and Time of Use of Dust Suppression Equipment Record Results of Visual Observations	Each Time Equipment is Used Daily	401 KAR 52:020, Section 26
Report Exceedances of Standard	Upon Discovery	401 KAR 52:020, Section 26

OPERATIONAL FLEXIBILITY: This permit places no restrictions on hours of operation or quantity of throughput (solid waste received), but the source may be subject to other restrictions pursuant to other state and federal regulatory programs..

CREDIBLE EVIDENCE:
This permit contains provisions which require that specific test methods, monitoring or recordkeeping be used as a demonstration of compliance with permit limits. On February 24, 1997, the U.S. EPA promulgated revisions to the following federal regulations: 40 CFR Part 51, Sec. 51.212; 40 CFR Part 52, Sec. 52.12; 40 CFR Part 52, Sec. 52.30; 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12, that allow the use of credible evidence to establish compliance with applicable requirements. At the issuance of this permit, Kentucky has only adopted the provisions of 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12 into its air quality regulations.